

10

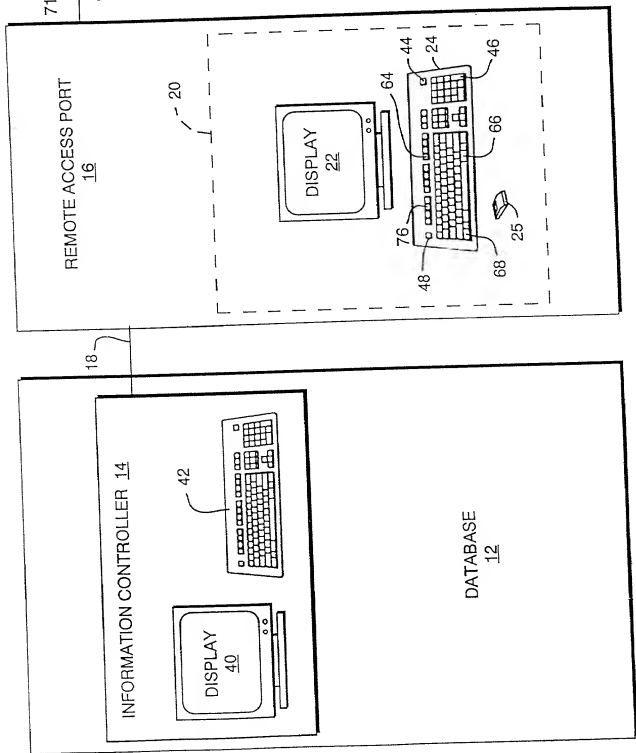


FIG. 1

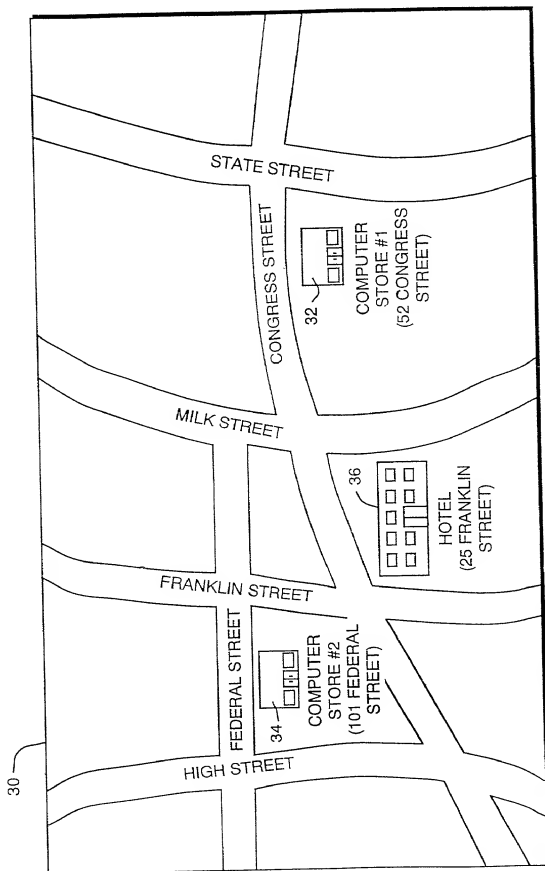


FIG. 2

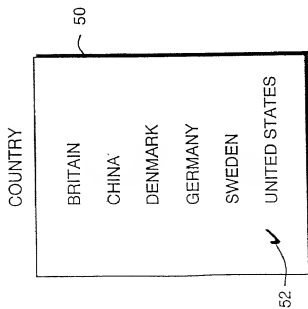


FIG. 3

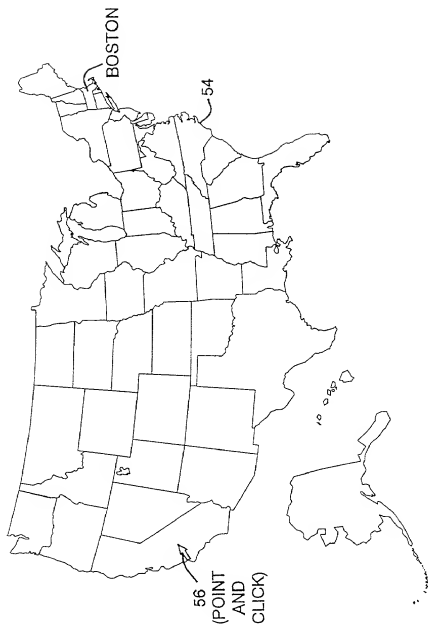


FIG. 3A

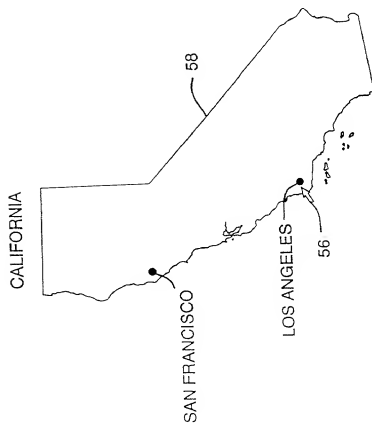


FIG. 3B

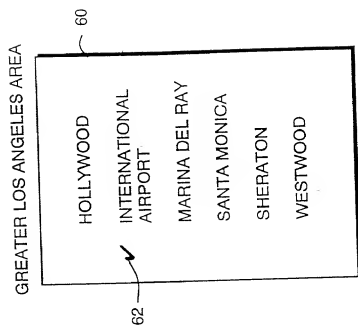
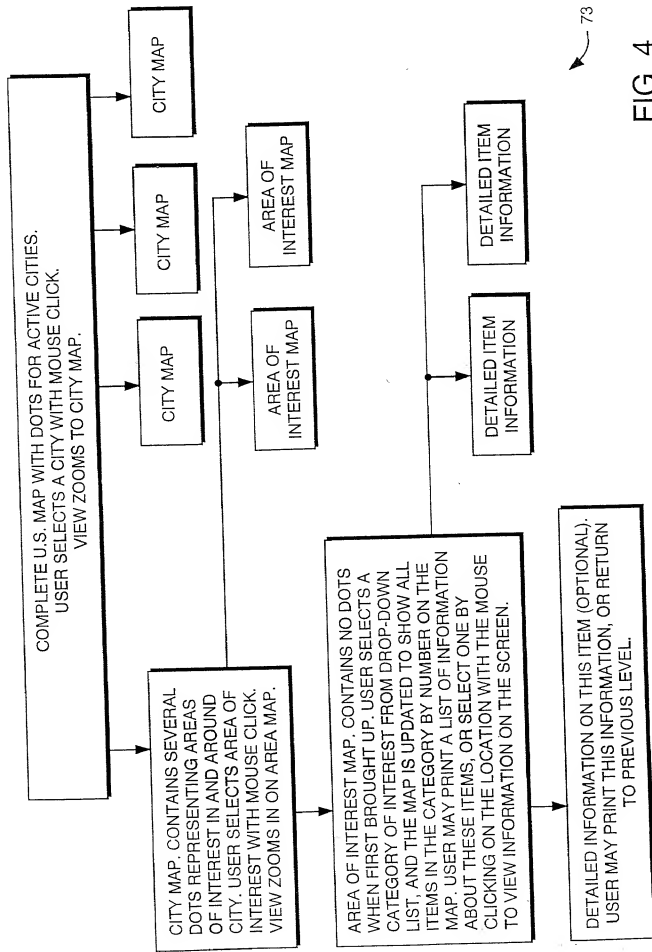


FIG. 3C



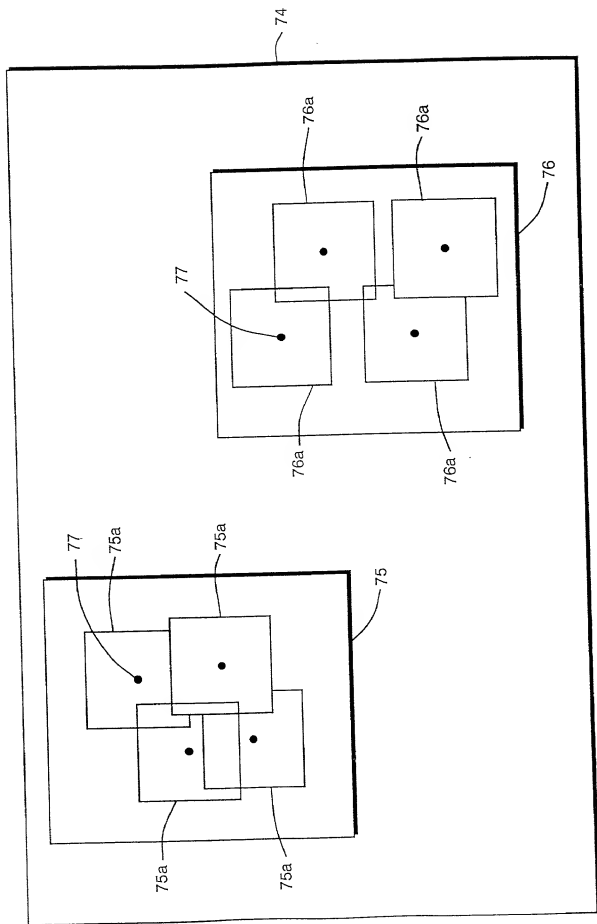


FIG. 4A

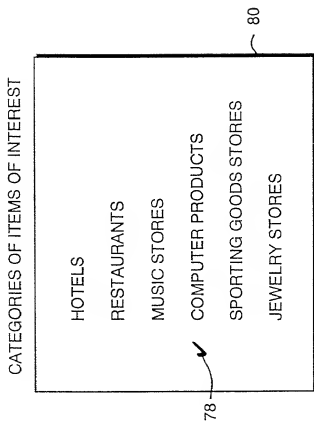


FIG. 5

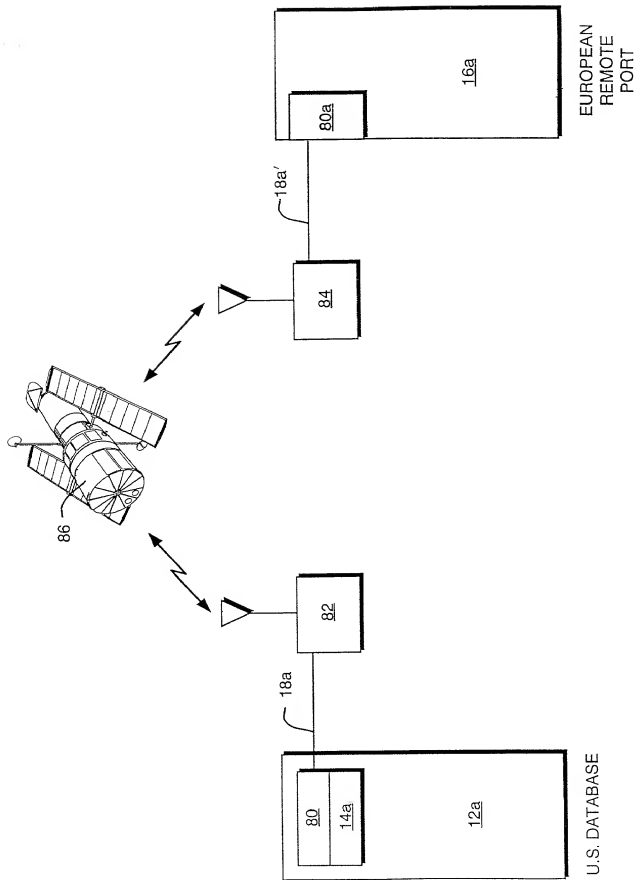


FIG. 6A



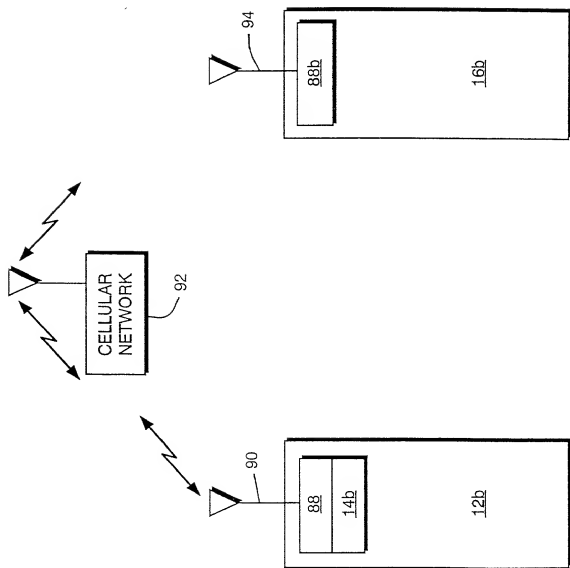


FIG. 6B

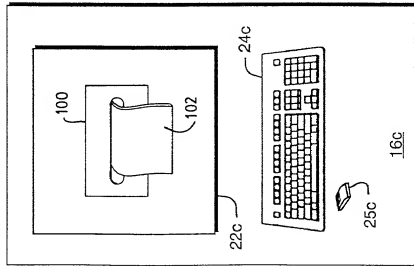


FIG. 7A

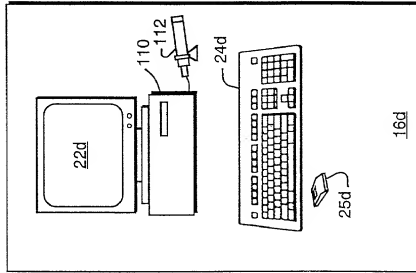


FIG. 7B

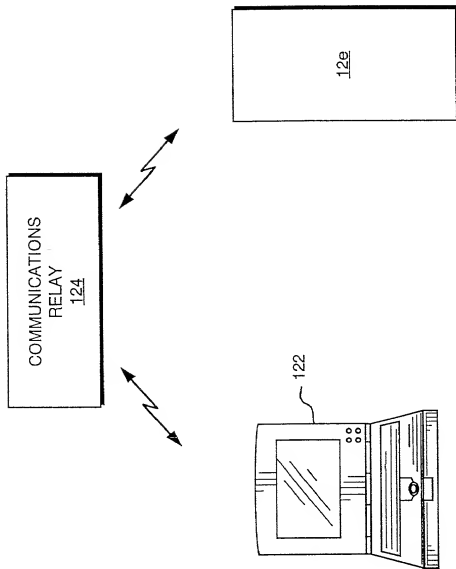


FIG. 8

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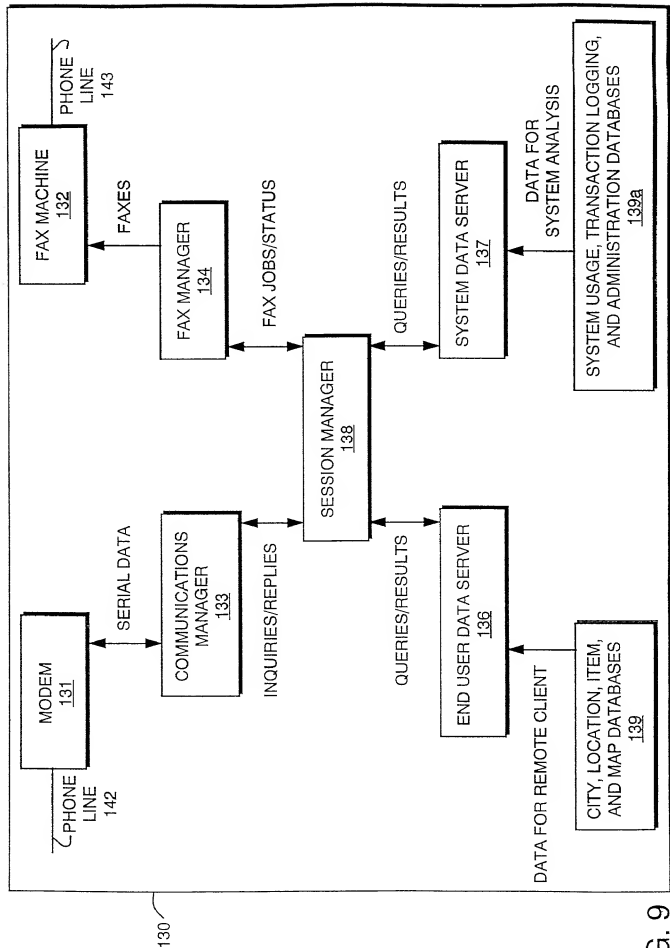


FIG. 9

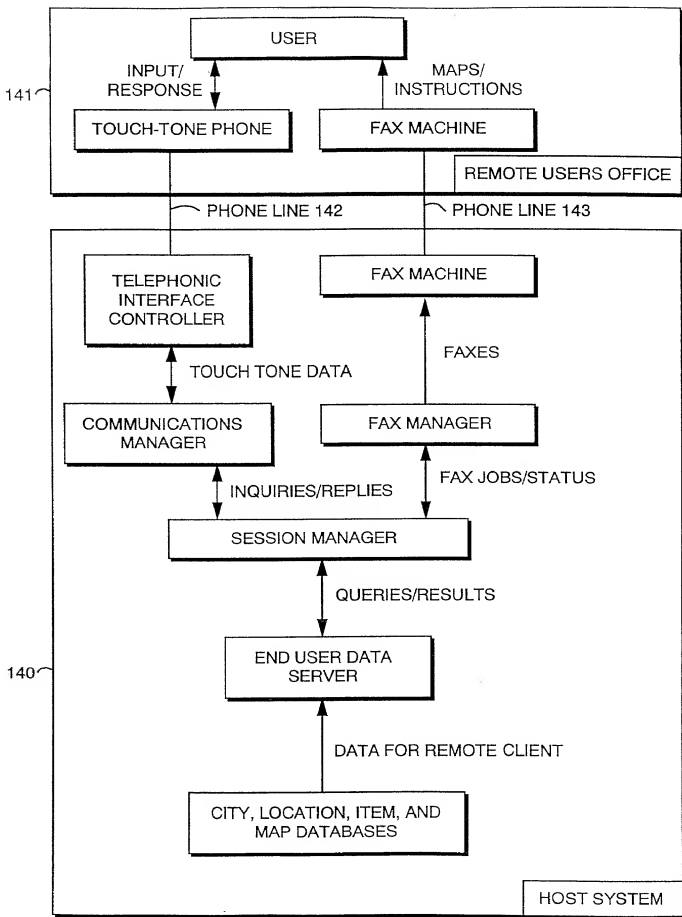


FIG. 10

The diagram illustrates the architecture of a map display system, showing the following components and their interactions:

- DISPLAY MANAGER (150):** CONTROLS ALL DRAWING OF MAPS ON SCREEN. CONTROLS STATUS MESSAGES TO USER. It receives **MAP DATA REQUESTS** from the MAP MANAGER and sends **MAP DATA** back. It also sends **DISPLAY MESSAGES** to the SYSTEM KERNEL and receives **STATUS** from it. It is connected to a **DISPLAY** block for **SCREEN UPDATES**.
- MAP MANAGER (151):** MANAGES MAP DATA FOR CURRENT SESSION. PROVIDES DATA FOR DRAWING MAPS TO DISPLAY MANAGER. It sends **MAP DATA REQUESTS** to the DISPLAY MANAGER and receives **MAP DATA** in return. It also sends **DATA REQUESTS** to the DATA MANAGER and receives **DATA** from it.
- DATA MANAGER (152):** HANDLES ALL DATA REQUESTS FROM KERNEL OR MAP MANAGER. INTERFACES TO EXTERNAL DATA SOURCES. PASSES ON REMOTE DATA REQUESTS TO COMMUNICATIONS MANAGER. It receives **DATA REQUESTS** from the MAP MANAGER and sends **DATA** back. It also receives **DATA REQUESTS** from the SYSTEM KERNEL and sends **DATA** back. It is connected to a **MAP DATABASE (156)** and **OTHER DATABASES (155)**.
- SYSTEM KERNEL (159):** TRAPS ALL USER INPUTS AND DETERMINES REQUIRED ACTIONS. It receives **USER INPUTS: (KEYBOARD, MOUSE) (160)** and sends **DATA REQUESTS** to the DATA MANAGER. It also sends **DATA** to the DATA MANAGER and receives **DATA REQUESTS** from it. It sends **STATUS MESSAGES (153)** to the DISPLAY MANAGER and receives **STATUS** from it. It sends **PRINT REQUESTS** to the PRINT MANAGER and receives **RESPONSE** from it.
- USER INPUTS: (KEYBOARD, MOUSE) (160):** Provides input to the SYSTEM KERNEL.
- PRINT MANAGER (153):** HANDLES ALL PRINTING IN SYSTEM. REQUESTS MAP AND OTHER DATA FROM DATA MANAGER TO CREATE PRINT JOBS. It receives **PRINT REQUESTS** from the SYSTEM KERNEL and sends **RESPONSE** back. It sends **PRINT JOBS** to a **PRINTER (154)**.
- COMMUNICATIONS MANAGER (157):** HANDLES ALL REMOTE COMMUNICATIONS REQUIREMENTS, INCLUDING REMOTE DATA REQUESTS. It receives **REMOTE REQUESTS** from a **REMOTE DATA SOURCE (158)** and sends **REMOTE REQUESTS** to the DATA MANAGER. It also receives **RESPONSE** from the DATA MANAGER.
- REMOTE DATA SOURCE (158):** Sends **REMOTE REQUESTS** to the COMMUNICATIONS MANAGER.
- PRINTER (154):** Receives **PRINT JOBS** from the PRINT MANAGER.

FIG. 11

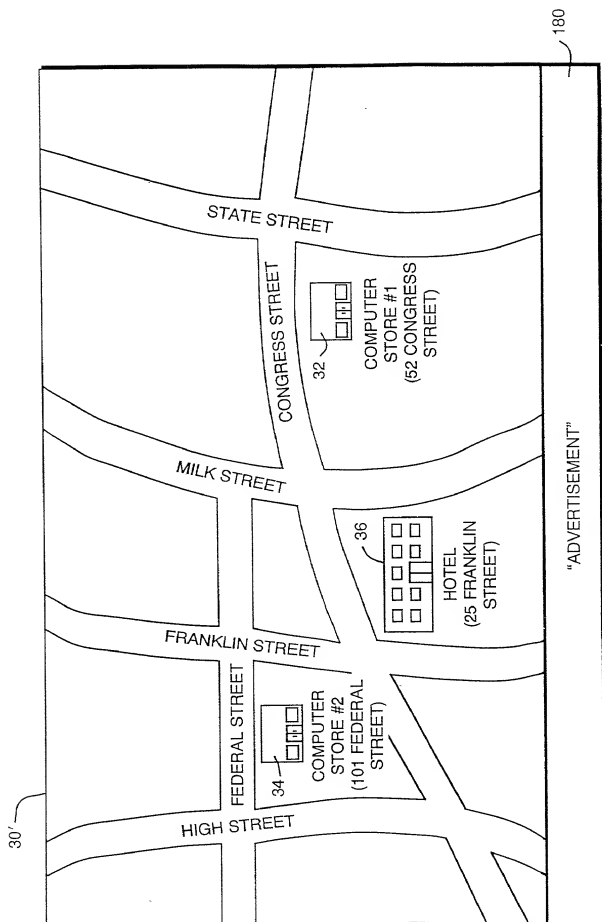


FIG. 12